REMARKS

Claims 1-42 are pending in the application. Claims 1-42 stand rejected. Claims 1-7, 17-19, 21-28, and 38-40 were amended. Claims 1-42 remain in the application.

Claims 1-2, 6-11, 17, 19-23, 27-32, 38 and 40-42 stand rejected under U.S.C. 103(a) as being unpatentable over Bantum (US 6,466,209) in view of Wang et al. (US 5,337,361) and Krutak Sr. et al. (US 6,174,400).

In relation to Claim 1, the rejection stated:

"Re claims 1-2, 6-11, 17, 19-23, 27-32, 38 and 40-42: Bantum discloses a visible image having a plurality of image pixels (col. 2, line 66 through col. 3, line 30); invisible information having a plurality of invisible data elements, each of the invisible data elements relating to and being in resignation with a corresponding one of the image pixers of the visible image (col. 3, line 54 through col. 4, line 48 and col. 6, lines 49-67); the visible image is a pictorial image (figs. 1-2); the invisible information is recorded as a pattern of invisible ink deposited by an ink jet printer (col. 6, lines 45+); the invisible image is a classification, identification, categorization, etc. (col. 8, lines 15-60).

"Bantum is silent with respect to recording the visible image and the invisible data on a support/medium, the invisible is detectable in the ultraviolet region of the electromagnetic spectrum and the article contains a temporal sequence of images, respectively.

"Wang et al. teaches (figs. 1A-1D; col. 3, line 50 through col. 5, line 38) an image bearing article, comprising: a support 16; a visible image 17, which can be a graphic/computer generated image or a photograph, recorded on the support 16 (fig. 1; col. 3, line 52+); and invisible information 18 recorded on the support 16, the invisible information 18 relating to and in registration with elements of the visible image 17; wherein the invisible information 18 is detectable in the ultraviolet region of the spectrum (col. 3, lines 67+); wherein the article contains a temporal sequence of images (col. 5, lines 35+).

"It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of Wang et al. into the system as taught by Bantum in order to provide

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Bantum with an alternative storage for storing data (i.e., hard copy). Furthermore, such modification would provide Bantum with a more secure system wherein an authorized individual cannot read or decode the invisible information from the medium/article without the necessary equipment (i.e., ultraviolet), and therefore an obvious expedient.

"Bantum as modified by Wang et al. is silent with respect to the invisible information having invisible data elements corresponding to each of the image pixels of the visible image, each of the invisible data elements relating to and being in the same physical pixel location as a respective one of the image pixels of the visible image.

"Krutak Sr. et al. teaches a printing media layer 12 containing invisible data elements 18 corresponding to each of the image pixels 16 of the visible image (fig. 1; col. 3, lines 7-15), each of the invisible data elements 18 relating to and being in the same physical pixel location as a respective one of the image pixels 16 of the visible image (fig. 3, col. 3, lines 7-15).

"It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of Krutak Sr. et al. into the system as taught by Bantum/Wang et al. in order to provide Bantum/Wang et al. with a more secure system preventing both invisible and visible data from being copied and/or manipulated (i.e., if ones tries to copy or manipulate one data (either invisible or visible) will result in damaging both data), and therefore an obvious expedient."

Claim 1 states:

1. An image bearing article, comprising:

a) a support;

b) a visible image recorded on the support, the visible image having a plurality of image pixels having image information; and

c) an invisible layer recorded on the support, the invisible layer having invisible data elements corresponding to each of said image pixels of said visible image, each of said invisible data elements being in registration with a respective one of the image pixels of the visible image, each of said invisible data elements having one of a plurality of

values encoding additional information about the respective one of the image pixels of the visible image, each of said invisible data elements being individually readable to provide said additional information.

The changed language of Claim 1 is supported by the application as filed, notably at page 4, lines 21-23; page 7, lines 3-6 and 8-13.

Claim 1 requires that each of the invisible data elements is individually readable. Claim 1 also requires that the image pixels have image information and each of the invisible data elements has additional information about a respective visible image pixel.

Bantum and Wang et al. are silent as to these features. (The rejection notes that Bantum as modified by Wang et al. is silent as to invisible data elements corresponding to each of the image pixels of the visible image, each of the invisible data elements relating to and being in the same physical pixel location as a respective one of the image pixels of the visible image and, therefore, cites Krutak Sr. et al.)

Krutak Sr. et al. discloses thermal transfer ribbons, which include an invisible (near-infrared fluorophore) material in a printable layer. (Krutak Sr. et al., col. 3, lines 7-15) In some embodiments, the ribbons have a single printable layer including the invisible material along with visible pigments. (Krutak Sr. et al., col. 9, line 64 to col. 10, line 11) or include the invisible material in one layer and visible pigments in another. (Krutak Sr. et al., col. 11, line 59 to col. 12, line 3) Using these ribbons, images are printed that are viewable in visible and infrared illumination. With these embodiments of Krutak Sr. et al., the invisible material simply matches the image, since it is carried along with the visible image pigment or layer during printing. (Krutak Sr. et al., col. 10, lines 19-28)

Claim 1, in contrast, requires:

"image pixels having image information"

and

"each of said invisible data elements having one of a plurality of values encoding additional information about the respective one of the image pixels of the visible image".

In Claim 1, unlike Krutak Sr. et al., each invisible data element provides encoded information (one of a plurality of values) about a respective image pixel that is additional to the image information provided by the image pixel.

In other embodiments of Krutak Sr. et al., the ribbons have a visible pigment layer and one or more layers having the invisible material that are "spot coated" (patterned) the same or different. (Krutak Sr. et al., col. 12, lines 32-38; col. 13, lines 12-45) With these embodiments, the invisble material carries a pattern, resulting in a visible image and a patterned invisible image. (Krutak Sr. et al., Figure 7; col. 12, lines 50-67) Repeating patterns are described. (Krutak Sr. et al., col. 13, line 34 to col. 14, line 31)

Claim 1 requires:

"image pixels having image information"

and

"the invisible layer having invisible data elements corresponding to each of said image pixels of said visible image, each of said invisible data elements being in registration with a respective one of the image pixels of the visible image, each of said invisible data elements having one of a plurality of values encoding additional information about the respective one of the image pixels of the visible image, each of said invisible data elements being individually readable to provide said additional information."

In Claim 1, unlike the spot coated embodiments of Krutak Sr. et al., the invisible layer has individually readable invisible data elements corresponding to and in registration with each of the image pixels of the visible image. This is contrary to the nature of the "spot coating" in Krutak Sr. et al. (See Krutak Sr. et al., Figures 4 and 7. Even if this were not the case, Claim 1 would be unlike these embodiments of Krutak Sr. et al, in requiring that each invisible data element provides encoded information (one of a plurality of values) about a respective image pixel that is additional to the image information of the image pixel.

Claims 8-11, 17, and 19-20 were amended, as necessary, to track the language of Claim 1 and are allowable as depending from Claim 1 and as follows.

Claims 8-10 state:

8. The article claimed in Claim 1, wherein the invisible data elements are each distance information relating to a respective one of the image pixels.

9. The article claimed in Claim 1, wherein the invisible data elements are each a classification of a respective one of the image pixels.

10. The article claimed in Claim 1, wherein the invisible data elements are each a difference between a respective one of the image pixels and a corresponding element in a separate image.

Claims 8-10 require that the invisible data elements are distance information, a classification, and a difference, respectively, relating to a respective image pixel. The portion of Bantum apparently cited in regard to Claims 8-10 (Bantum, col. 8, lines 15-60) merely discloses "Possible Applications" of the earlier discussed method, which as discussed above in relation to Claim 1 does not teach or suggest the claimed invention, either by itself or with Wang. The rejection does not address how the cited combination of references would be capable of carrying information about each pixel while, according to Bantum, only modifying pixels in a particular region of the image. Krutak Sr. et al. adds nothing to the other references in relation to these claims, since the invisible layer(s) are continuous or spot coated in a pattern unrelated to image pixels. (See the discussion in Krutak Sr. et al. of a repeating pattern, brand name, and product logo or trademark, col. 13, lines 34-42)

Claim 11 is also allowable as depending from Claim 10.

Claim 19 is supported on the grounds discussed below in relation to Claim 2.

Claim 2 states:

2. An image bearing article, comprising:

a) a support;

b) a visible image recorded on the support, the visible image having a plurality of image pixels having image information; and

c) a plurality of invisible layers recorded on the support, the invisible layers each having invisible data elements corresponding to each of said image pixels of said visible image, each of said invisible data elements being in the same physical pixel location as a respective

one of the image pixels of the visible image, each of said invisible data elements having additional information about the respective one of the image pixels of the visible image;

wherein respective invisible data elements of each of the invisible layers have different information.

Claim 2 is supported by the application as filed, notably the original claims and at page 7, lines 23-29.

Claim 2 requires a plurality of invisible layers, each having invisible data elements in the same physical pixel location as a respective one of the image pixels. The non-spot coated embodiments of Krutak Sr. et al. do not have a plurality of invisible layers, nor additional information in invisible data elements of each of the layers about the respective pixels, nor different information in respective invisible data elements of each layer. Some of the spot coated embodiments of Krutak Sr. et al. do have a plurality of additional layers, but they do not have an invisible layer that has individually readable invisible data elements corresponding to and in registration with each of the image pixels of the visible image. The spot coated embodiments of Krutak Sr. et al. also do not have additional, different information in the respective invisible data elements.

Claims 6-7 and 21 were amended, as necessary, to track the language of Claim 2 and are allowable as depending from Claim 2.

Claim 22 was amended in the same manner as Claim 1 and is supported and allowable on the same basis.

Claims 29-32, 38, and 40-41 were amended, as necessary, to track the language of Claim 22 and are allowable as depending from Claim 22 and as follows. Claims 29-32 are allowable on the grounds discussed above in relation to Claims 8-11. Claim 40 is supported on the same basis as Claim 2.

Claim 23 was amended similar to Claim 2 and is supported and allowable on the same basis.

Claims 27-28 and 42 were amended, as necessary, to track the language of Claim 23 and are allowable as depending from Claim 23.

Claims 3-5, 12, 18, 24-26, 33 and 39 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bantum as modified by Wang et al and Krutak Sr. et al. as applied to claims 1 and 22, and further in view of Williams et al. (US 6,610,386).

Claims 3-5, 12, and 18 are allowable as depending from Claim 1 and as follows. Claim 12 is allowable on the grounds discussed above in relation to Claims 8-10, which would not be changed by the addition of Williams et al.

Claims 24-26 are allowable as depending from Claim 23.

Claims 33 and 39 are allowable as depending from Claim 22 and as follows. Claim 33 is allowable on the same grounds as Claim 12.
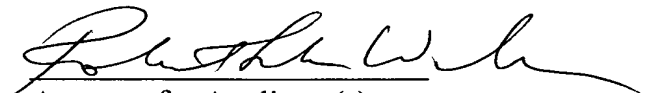
Claims 13-16 and 34-37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bantum as modified by Wang et al. and Krutak Sr. et al. as applied to claims 1 and 22, and further in view of Rhoads (US 6,252,963).

Claims 13-16 and 34-37 are allowable as depending from Claims 1 and 22, respectively, and on the grounds discussed above in relation to Claims 8-10, which remain applicable, since Rhoads does not change the indicated teachings of the references.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

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